AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of predicting a fracture path in a bone ~~to derive information regarding one or more bone parameters from an image~~ comprising:

    (a) obtaining an image of the ~~comprising~~ bone ~~from a subject~~;

    (b) defining two or more positions ~~regions of interest (ROIs)~~ in the image; ~~and~~

    (c) placing a region of interest (ROI) at each of the two or more positions;

    ~~(c)~~(d) analyzing each of ~~a plurality of positions in~~ the ROIs to determine at least one value for two ~~one~~ or more parameters selected from the group consisting of bone density, bone micro-architecture, bone macro-anatomy, biomechanical parameters and combinations thereof ~~of the ROIs.~~;

    (e) for each analyzed parameter, assigning the at least one value from each ROI to its respective position, thereby creating a parameter map for each analyzed parameter;

    (f) generating a composite parameter map from the parameter maps of step (e); and

    (g) analyzing the composite parameter map.

2. (Original) The method of claim 1, wherein the ROIs are overlapping.

3. (Currently Amended) The method of claim 1, wherein the two or more positions analyzed ~~in the ROIs~~ are at regular intervals in the image.

4. (Currently Amended) The method of claim 1, wherein the two or more positions analyzed ~~in the ROIs~~ are at irregular intervals in the image.

5. (Currently Amended) The method of claim 1, wherein at least one of the two or more parameters is bone micro-architecture and the two or more positions analyzed are at regular intervals in the image.

6. (Currently Amended) The method of claim 1, wherein at least one of the two or more parameters is bone macro-anatomy and the two or more positions are analyzed are at irregular intervals in the image.

7. (Original) The method of claim 1, wherein the image is two-dimensional.

8. (Currently Amended) The method of claim 7, wherein the two-dimensional image is an x-ray image.

9. (Original) The method of claim 1, wherein the image is three-dimensional.

10. (Original) The method of claim 1, wherein the image is an electronic image.

11. (Currently Amended) The method of claim 1, wherein the bone subject is part of an osteoporosis subject.

12. – 13. (Cancelled)

14. (Currently Amended) The A method of ~~claim 1 wherein~~ ~~predicting a fracture path in a~~ ~~subject comprising: (a) analyzing one or more parameter maps preparing according to the~~ ~~method of claim 12, wherein~~ the analysis of step (d) and/or step (g) is watershed segmentation analysis and/or Markov random field analysis~~; and (c) identifying possible~~ ~~fracture paths based on the analysis of step (a), thereby predicting a fracture path in the~~ ~~subject~~.

15. (Currently Amended) A method of predicting the risk of fracture of a bone ~~in a subject~~ comprising:

    (a) obtaining an image of the bone;

    (b) defining two or more positions in the image;

    (c) placing a region of interest (ROI) at each of the two or more positions;

    (d) analyzing each ROI to determine at least one value for one or more parameters selected from the group consisting of bone density, bone micro-architecture, bone macro-anatomy, biomechanical parameters and combinations thereof;

    (e) for each analyzed parameter, assigning the at least one value from each ROI to its respective position, thereby creating a parameter map for each analyzed parameter;

    ~~(a)~~(f) generating a biomechanical ~~finite element~~ model from the one or more parameter maps of step (e) ~~obtained according to the method of claim 12~~;

    ~~(b)~~(g) applying simulated force vectors that would occur during a fracture incident to the generated biomechanical ~~finite element~~ model ~~generated in step(s)~~; and

    ~~(c)~~(h) determining the minimum forces required for fracture to occur, thereby estimating the risk of fracture.

16. (Currently Amended) A method of predicting ~~determining~~ the risk of fracture of a bone ~~in a subject~~ comprising:

    (a) predicting a fracture path according to the method of claim 13; and

(b) evaluating one or more selected bone parameters along the predicted fracture path, thereby estimating the risk of fracture.

17. (Currently Amended) A method of predicting ~~determining~~ the risk of fracture of a bone ~~in a subject~~ comprising:

(a) predicting a fracture path according to the method of claim 14; and

(b) evaluating one or more selected bone parameters along the predicted fracture path, thereby estimating the risk of fracture.

18. (Cancelled)

19. (New) The method of claim 15, wherein the ROIs are overlapping.

20. (New) The method of claim 15, wherein the two or more positions analyzed are at regular intervals in the image.

21. (New) The method of claim 15, wherein the two or more positions analyzed are at irregular intervals in the image.

22. (New) The method of claim 15, wherein the one or more parameter is bone micro-architecture and the two or more positions analyzed are at regular intervals in the image.

23. (New) The method of claim 15, wherein the one or more parameter is bone macro-anatomy and the two or more positions analyzed are at irregular intervals in the image.

24. (New) The method of claim 15, wherein the image is two-dimensional.

25. (New) The method of claim 24, wherein the two-dimensional image is an x-ray image.

26. (New) The method of claim 15, wherein the image is three-dimensional.

27. (New) The method of claim 15, wherein the image is an electronic image.

28. (New) The method of claim 15, wherein the bone is part of an osteoporosis subject.